

BREASTFEEDING AND BREASTCANCER, A VERITABLE ASSOCIATION AMONG NIGERIAN WOMEN?

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ABSTRACT

Objective: To ascertain the existence of an association between duration of breastfeeding and breast cancer in Nigerian women. A pilot study.

Design: Case-control study.

Setting: University of Benin Teaching Hospital, Central Hospital Benin.

Subjects: One hundred and eighty subjects consisting of 91 cases of breast cancer and their age matched controls.

Results: Age range, 28years –70years. Mean age 46.3years. Mean breastfeeding duration for cases and controls; 5.8 years and 6.0years respectively. Thirty six cases and 21 controls breastfed for two years or less. Fifty four cases and 69 controls breastfed for more than two years. Breastfeeding for two years or less was associated with higher risk. (OR=2.19, P 0.025, CI-1.149- 4.177).

Conclusion: Breastfeeding for less than three years is associated with higher risk for breast cancer in Nigerian women.

KEYWORDS: Breastfeeding duration, Breast cancer, Risk.

INTRODUCTION

Breast cancer is the leading female malignancy in the world and is now the most common cancer in Nigeria. (Mc Pherson 2000, Adebamowo2000) In 1985, world wide incidence was estimated to be 720,000 cases per year and in year 2000, it was estimated to be one million new cases. The estimated incidence of breast cancer in Nigeria was 15.3 per 100,000 in 1976 but rose to 33.6 per 100,000 by 1993. (Ihekwoaba 1992)

In the early part of the century it was postulated that the breast which has never been called upon for normal function is certainly more liable to become cancerous. (Lane-Clayton 1926) This position had earlier been heralded by an Italian researcher who in the year 1743 made an observation of the disease being an occupational hazard among nuns. The pathogenesis of breast cancer has been attributed to a cumulative response of exposure of breast epithelium to estrogen; this is modified by lactation with decreased exposure to estrogen. (Byers 1985, Key 1988)

Breast cancer risk factors include early menarche, late menopause, and family history. These factors are not subject to behavioural changes unlike breastfeeding practices. It has been advocated by workers as a modifiable tool which could be employed in cutting down the incidence of breast cancer among Caucasians.

It has been commonly proclaimed that African women with their early first births, high parity and extensive lactational periods were shielded to some extent from breast cancer. (Harris 1992) However, breast cancer clinics in Nigeria are strewn with women with prolonged lactation history. This leaves the cancer researcher

questioning the protective effect of breastfeeding in African women. There is minimal presence of reports on studies done in Africans judging from the paucity of abstracts on the subject. The bulk of studies on the subject have been done among Caucasian population. Hence the relevance of this study in ascertaining if the duration of breastfeeding impacts on the incidence of breast cancer in Nigerian women.

METHODS

This case-control study was carried out in the General-Surgery, Otolaryngology outpatient clinics and female surgical wards of University of Benin Teaching Hospital (UBTH) as well as the surgical outpatient and female surgical wards of Central hospital Benin.

The sample population consisted of women who were 28 years and above at last birth day. They consisted of 89 cases of breast cancer and age matched controls. The diagnosis of breast cancer was made after clinical breast examination, biopsy and histology obtained in the Department of Pathology, University of Benin Teaching Hospital. Benin City, Nigeria.

The age-matched controls were sampled randomly from patients on out-patient visit and in-patients in the wards without breast cancer or not being treated for any cancer at the time of this study. Participants gave an informed consent. The questionnaire ascertained age, parity and duration of breast feeding for each child. The cumulative breastfeeding duration was ascertained by summing up the breastfeeding duration of all the children.

The data was collated at the end of the study period and data analysis done using the EP info computer package. Odds ratio was utilized in determining the association between the duration of breastfeeding and risk of developing breast cancer. Statistical significance set at p less than 0.001.

RESULTS

AGE DISTRIBUTION: The sample size consisted of 89 cases of breast cancer and 89 age matched control. The 31-40 age range and the 41-50 age range constituted the majority with 28 (30.0%) of the cases. There were eleven cases (11.3%) above the age of 60 (Table 1).

CUMULATIVE BREASTFEEDING DURATION: The study population showed 36 cases (40.4%) and 21 controls (23.6%) breastfed for two years or less. Fifty four cases (60.7%) and 69 controls (77.5%) breastfed for more than two years. Breastfeeding for less than two years was at increased risk. OR-2.19, P 0.025, 95% Confidence Interval 1.149 to 4.177. However this was statistically significant (Table 2).

Table 1- AGE DISTRIBUTION OF CASES AND CONTROL

Age range (Year)	Cases No (%)		Controls No (%)		Total No (%)	
28-30	5	5.62	5	5.62	10	5.6
31-40	28	31.46	30	33.7	58	32.6
41-50	28	31.46	30	33.7	58	32.6
51-60	17	19.10	16	17.98	33	18.5
61-70	9	10.11	5	5.62	14	7.9
>70	2	2.25	3	3.37	5	2.8
Total	89	100	89	100	178	100

Table 2- Analysis of risk factors

Variable	Cases (n)	Controls (n)	OR	P	X ²	95% CI
Cumulative Breastfeeding						
<=2yrs	36	21	2.190	0.0249	5.032	1.149, 4.177
>2yrs	54	69	1.00			
0 yrs	11	6				
1	12	3				
>1-<2	13	12				
3-4	15	19				
5-6	10	22				
7-8	16	13				
9-10	5	12				
>10	8	3				

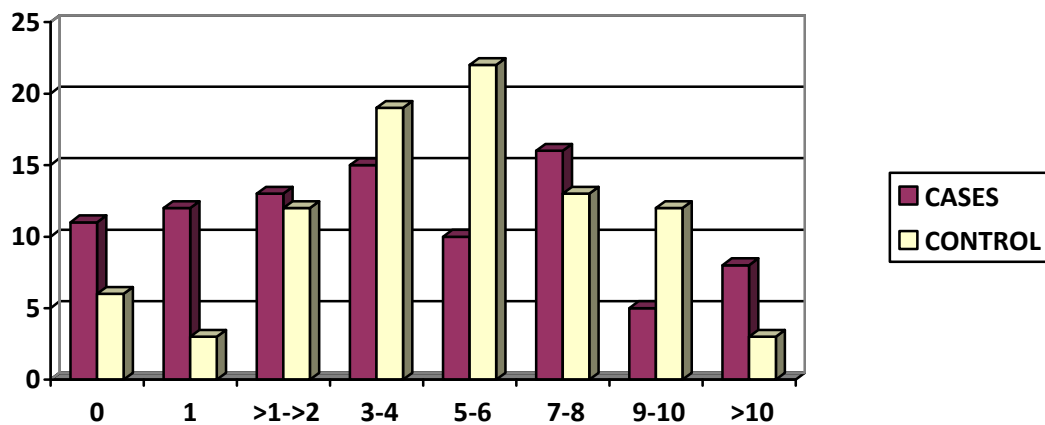


Fig 1: Bar Chart showing Frequency- breastfeeding duration for cases and controls

DISCUSSION

This is the report of a study examining the link between breastfeeding and breast cancer among Nigerian women. This study shows an increased risk of breast cancer with cumulative breastfeeding duration of two years or less. (O.R 2.19, P 0.025).

Earlier local reports have shown an increased risk despite contrary expectations (Okobia 2005). Another case-control study done comparatively on African American women and Caucasian women showed an association especially in African Americans with odds ratio-0.45 and 0.76 respectively. (Mayberry 1992). There are reports that epithelial cells in an alkaline milieu undergo preneoplastic changes such as hyperplasia, cell atypia and increased rate of mitoses. (Murrell 1991). Studies have shown breast milk from unsuckled breasts demonstrating higher pH while that from suckled breasts remains acidic. (Gruenke 1987).

The study suggested the excretion of some carcinogenic agents from the breast ductal tissue during breastfeeding after demonstrating the level of a potential carcinogen, cholesterol-b-epoxide being lower in the breast fluid of women during and up to 2 years after breastfeeding. (Gruenke 1987). Delay in the re-establishment of ovulation during breastfeeding has been hypothesized to account for its protective effects. (Henderson 1983)

Valerie Bernal in a seminal study, established a reduction in relative risk of 4% for every 12 months of breastfeeding. (Valerie Bernal 2002). There are reports that resistance to carcinogenesis of mammary duct epithelium may be ascribed to terminal differentiation of the mammary duct epithelial cells induced by lactation.

This study showed 11 breast cancer cases with no breastfeeding history as against six among controls. There is evidence that breast fluid estrogen levels are lower in breastfeeding parous women than in non-breastfeeding parous women and nullipara due to excretion through the breast milk. Thus it has been hypothesized that lactation by causing reduced oestrogen and increased prolactin production, decreases the cumulative exposure to oestrogen hence decreasing tendency to carcinogenesis of breast epithelial cells. (Byers 1985, Key 1988). The New Zealand study with a large sample size reaffirmed this position. (Mc Credie 1988)

Some studies differed in their findings; a study done on South African women, (Furberg 1999), Norwegian women (Kvale 1987) and the Nurses' Health Study (Michels 1996) all found no association between breastfeeding and the incidence of breast cancer. Some workers however have held that the dissent seen in these studies may be due to the low prevalence of prolonged breastfeeding in the studied subjects. (Loren 2000).

The cumulative duration of breastfeeding in this study was quite high in comparison to studies done in Western women. The women in this study had 45% of cases and 54% of controls breastfeeding for 5 years and more. A significant 34% of cases and 32% of controls had breastfed for 7 years and more. Similarly Okobia *et al* found 43% of cases and 53% of controls breastfeeding for 5 years or more. (Okobia 2005). Currently 95 % of infants in Africa are breastfed. (Dop 2002) One study showed the breastfeeding duration in Africa was 1.64 times higher than in Latin America/Caribbean at 19.3 months and 11.8 months respectively. (Perez-Escamell 1994) This is expected seeing urbanization and mother's education are key factors in determining breastfeeding duration (Dop 2002). However, the Valerie Bernal study estimated the average cumulative period of breastfeeding in developed worlds as 7.5 months; being 2.5 months for each child and parity of 3. (Valerie Benal 2002) This relatively short cumulative breastfeeding duration has been postulated as accounting for the higher incidence of breast cancer seen in developed countries. (Harris 1996)

It is noteworthy that despite the relatively high cumulative duration of breastfeeding exhibited even in our case population, they were not protected from developing breast cancer. The presence of other aetiological factors in this group of cases can not be ruled out seeing breast cancer aetiology is multifactorial with inputs from hormonal, genetic and environmental factors. (Harris 1996).

The findings are those of a pilot study and did not attain statistical significance. However the findings are in conformity with earlier larger studies. Our data like other similar studies is based on the memory recall of our studied subjects which is not verifiable or measurable.

Prolonged breastfeeding is protective against breast cancer in the Nigerian woman as seen in this study. Race does not seem to determine whether breastfeeding protects against breast cancer contrary to our perceived notions in earlier portions of this study. However with the tendency towards lower parity as encouraged by family planning campaigns and increasing numbers of working mothers, Nigerian women are tending towards fewer births and shorter periods of breastfeeding; features characteristic of Caucasian women. Can a rise in incidence of breast cancer be projected?

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